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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,686	06/19/2006	Kevin Flower	063511-9089-00	4476

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David B Smith
Michael Best & Friedrich
100 East Wisconsin Avenue
Suite 3300
Milwaukee, WI 53202-4108

EXAMINER	
SZNAIDMAN, MARCOS L	
ART UNIT	PAPER NUMBER
1612	
MAIL DATE	DELIVERY MODE
04/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,686	FLOWER ET AL.	
	Examiner	Art Unit	
	MARCOS SZNAIDMAN	1612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,20-23 and 41-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *41* is/are allowed.

6)☒ Claim(s) *13,20-23 and 42-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2 pages / 03/05/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to applicant's reply filed on February 18, 2009.

Status of Claims

Amendment of claim 13, cancellation of claims 1, 14 and 24 and addition of claims 41-46 is acknowledged.

Claims 13, 20-23, and 41-46 are currently pending and are the subject of this office action.

Claims 13, 20-23, and 41-46 are presently under examination.

Due to Applicant's amendments and arguments, the previously examined species: bis[M-[(diethylphosphonio)bis(methylene)]di-Gold (CAS# 59120-29-5) and [M-(1,3-pheylenedi-2,1-ethynediyl)]bis(triphenylphosphine)di-Gold (CAS# 515159-28-1) no longer anticipate or make the claims obvious, so the examination was expanded to the remaining species which are free of prior art.

Priority

The present application is a 371 of PCT/GB04/05440 filed on 12/20/2004, and claims priority to foreign application UNITED KINGDOM 0329416.2 filed on 12/19/2003.

Rejections and/or Objections and Response to Arguments

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated

(Maintained Rejections and/or Objections) or newly applied (New Rejections and/or Objections, Necessitated by Amendment or New Rejections and/or Objections not Necessitated by Amendment). They constitute the complete set presently being applied to the instant application.

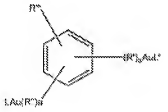
Claim Rejections - 35 USC § 112 (New Rejection not Necessitated by Amendment)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 and 42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

Claims 13 and 42 recite a pharmaceutical composition comprising a compound of general formula:



Wherein L and L' are ligands.

M.P.E.P. #2163 states: "An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention....one must define a compound by 'whatever characteristics sufficiently distinguish it'. A lack of adequate written description issue also arises if the knowledge and level of skill in the art would not permit one skilled in the art to immediately envisage the product claimed from the disclosed process".

A description of a chemical genus will usually comprise a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the members of the genus, which features constitute substantial portion of the genus. See *Univ. of California vs. Eli Lilly*, 43 USPQ 2d 1398, 1406 (Fed. Cir. 1997). This is analogous to enablement of a genus under section 112 first, by showing enablement of a representative number of species within the genus. A chemical genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. If the genus has a substantial variance, the disclosure must describe a sufficient number of species to reflect the variation within that genus.

Applicant has failed to show that he was in possession of all the diverse compounds encompassed by the above general formula, which encompasses millions of compounds. Applicant discloses the structure of the above formula only for L or L' PPh3 (triphenylphosphine, see for example claim 41 or specification page 9). There are no other examples of compounds wherein L or L' are other than PPh3. The disclosed

compounds can not be viewed as being reasonable representative of the genus in its claimed scope because no readily apparent combination of identifying characteristics is provided, other than the disclosure of those two specific examples.

Although applicant defines the term "ligand" on page 3 of the specification, the term is too broad and still includes a large number and variety of substituents.

Given the broad scope of the claimed subject matter, Applicant has not provided sufficient written description that would allow the skilled in the art to recognize all the compounds of the above general formula claimed.

Claim Rejections - 35 USC § 112 (New Rejection not Necessitated by Amendment)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13, 20-23, and 42-46 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the compounds 1-6 of the specification (see specification page 9 or claim 41), does not reasonably provide enablement for all the compounds claimed in the general formula of claims 13 and 42.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. This is a scope of enablement rejection.

To be enabling, the specification of the patent application must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557, 1561 (Fd. Cir. 1993). Explaining what is meant by "undue experimentation," the Federal Circuit has stated that:

The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which experimentation should proceed to enable the determination of how to practice a desired embodiment of the claimed invention. PPG v. Guardian, 75 F.3d 1558, 1564 (Fed. Cir. 1996). As pointed out by the court in *In re Angstadt*, 537 F.2d 498 at 504 (CCPA 1976), the key word is "undue", not "experimentation".

The factors that may be considered in determining whether a disclosure would require undue experimentation are set forth *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 wherein, citing *Ex parte Forman*, 230 USPQ 546 (Bd. Apls. 1986) at 547 the court recited eight factors:

1- the quantity of experimentation necessary,

2- the amount of direction or guidance provided,

3- the presence or absence of working examples,

4- the nature of the invention,

5- the state of the prior art,

6- the relative skill of those in the art,

7- the predictability of the art, and

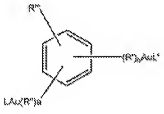
8- the breadth of the claims

These factors are always applied against the background understanding that scope of enablement varies inversely with the degree of unpredictability involved. *In re Fisher*, 57 CCPA 1099, 1108, 427 F.2d 833, 839, 166 USPQ 18, 24 (1970). Keeping

that in mind, the *Wands* factors are relevant to the instant fact situation for the following reasons:

1. The nature of the invention

Claims 13, 20-23, and 42-46 recite a pharmaceutical composition comprising a compound of general formula:



2. The relative skill of those in the art

The relative skill of those in the art is high, generally that of an M.D. or Ph.D. The artisan using Applicant's invention would generally be a physician with a M.D. degree and several years of experience.

3. The state and predictability of the art

Since most of the compounds claimed are novel there is no synthetic procedure for these particular compounds in the prior art.

It is well know in the prior art that organic synthesis is still an experimental science. Even though the knowledge of organic synthesis and the arsenal of chemical reactions have exploded in the last decades, there is still a high degree of unpredictability in organic synthesis. See for example Dorwald F. A. (Side reactions in

organic synthesis, 2005, Wiley, VCH, Weinheim, pg. IX of Preface) where it says: " Most non-chemists would probably be horrified if they were to learn how many attempted synthesis fail, and how inefficient research chemists are. The ratio of successful to unsuccessful chemical experiments in a normal research laboratory is far below unity, and synthetic research chemists, in the same way as most scientists, spend most of their time working on what went wrong, and why. He later states: "The final synthesis usually looks like quite different from that originally planned, because of unexpected difficulties encountered in the initially chosen synthetic sequence. Only the seasoned practitioner who has experienced for himself the many failures and frustrations which the development (sometimes even repetition) of a synthesis usually implies will be able to appraise such work". And finally: "Chemists tend not to publish negative results, because these are, as opposed to positive results, never definitive (and far too copious)."

It is also well known that compounds with similar structures will have similar biological properties. In this case, since Applicant claims such broad range of compounds, it is very unlikely that will all have similar properties to compounds A-F (see page 21 and data on page 23), some will have no activity at all, in which case it will not justify making a pharmaceutical composition.

4. The breadth of the claims

Claims 13, 20-23, and 42-46 are very broad in terms of the number of compounds claimed.

5. The amount of direction or guidance provided and the presence or absence of working examples

Applicant discloses a very narrow set of compounds and its biological properties (see compounds A-F on pages 21-23). Applicant provides a synthetic procedure for compound A (see page 27) and a biphenyl derivative. In both cases the ligand (L and L') is PPh3 and there are no other substituents in the aromatic ring (i.e. R''' is Hydrogen). Applicant has not provided data how to make compounds wherein L and L' are not PPh3 or wherein L is not the same as L'.

6. The quantity of experimentation necessary

As discussed above (see: 3. the state and predictability of the art), small changes in the structure of one of the reagents could cause a completely different synthetic outcome (i.e. different products, lower yields or no reaction at all). Based on this and since applicant claims such a diverse set of substituents on L, L' and R''', and since applicant only provides biological and synthetic data for a very narrow set of compounds (see: 5. The amount of direction or guidance and the presence or absence of working examples above), it is expected that some, if not most of The L, L' and R''' substituents will not provide the desired outcome outlined by Applicant following the procedure disclosed page 27 of the specification, and even those that can be made, depending on the substituents will probably not have the same biological properties as compounds A-F.

So, determining how to make a particular compound with a specific L, L' or R''' group different than PPh3 for L and L' and Hydrogen for R''', and determining its biological properties, would require testing of new synthetic pathways for the different compounds. This is undue experimentation given the limited guidance and direction provided by Applicants.

7. Conclusion

Accordingly, the invention of claims 24 13, 20-23, and 42-46 not comply with the scope of enablement requirement of 35 U.S.C 112, first paragraph, since to practice the claimed invention a person of ordinary skill in the art would have to engage in undue experimentation with no assurance of success.

Withdrawn Rejections and/or Objections

Claims rejected under 35 USC 102 (b)

Due to cancellation of claim 1, the 102(b) rejection is now moot.

Rejection under 35 USC 102(b) is withdrawn.

Claims rejected under 35 USC 103 (a)

Applicant's arguments have been fully considered and are persuasive.

Rejection under 35 USC 103(a) is withdrawn.

Allowable Subject Matter

Claim 41 is allowed.

Conclusion

Claim 41 is allowed.

Claims 24 13, 20-23, and 42-46 are rejected.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCOS SZNAIDMAN whose telephone number is (571)270-3498. The examiner can normally be reached on Monday through Thursday 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick F. Krass can be reached on 571 272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARCOS SZNAIDMAN/
Examiner, Art Unit 1612
April 23, 2009

/Brandon J Fetterolf/
Primary Examiner, Art Unit 1642